TECHNISCHE UNIVERSITÄT DRESDEN

Institute of International Forestry and Forest Products, Chair of Forestry and Forest Products in Eastern Europe

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# The Importance of Short Rotation Plantations in Germany - Relevance to Climate Change and Competitiveness on the Market

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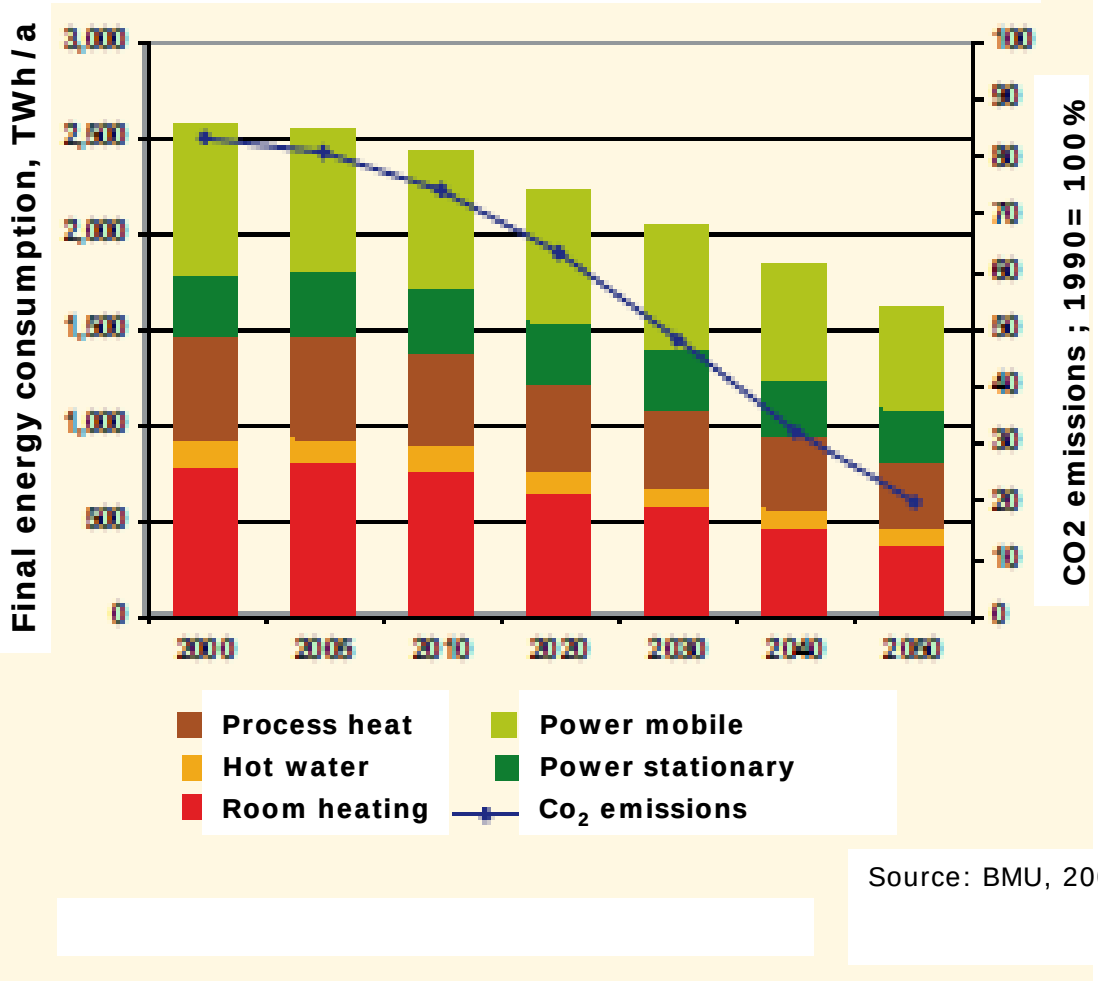



Source: BMU, 2008

**General political strategy:**

1 **Reducing of national energy consumption absolute**
from 2500 TWh/a $_{2000}$
to 1600 TWh/a $_{2050}$ (= - 0.3)

2 **More of Renewable Energy Sources (RES) as a share of energy supply**
(plus 470%)
Increasing from 3.8 $\%_{2000}$
to 18.0 $\%_{2050}$ (= +4.7)

# Final energy consumption and $CO_2$ emissions in Germany

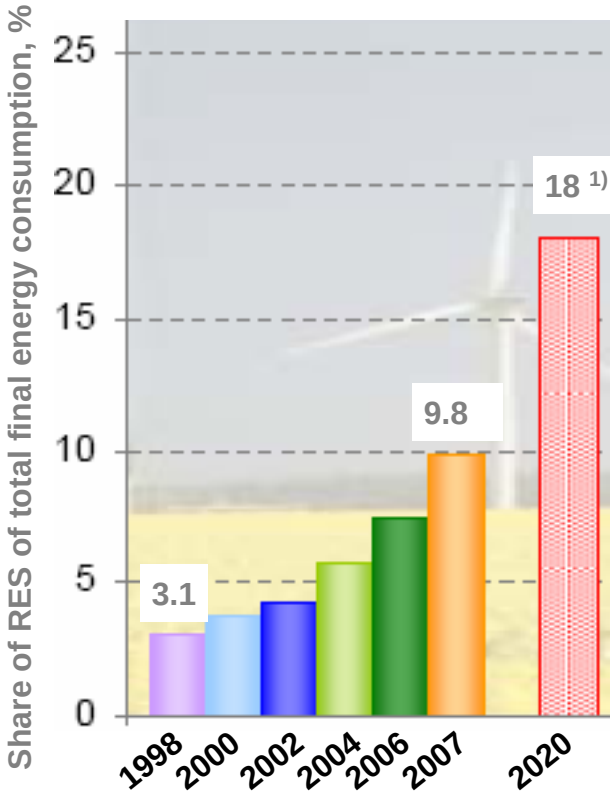
# National tools for economizing of fossil energies as well as implementation and acceleration of Renewable Energy Sources (RES)

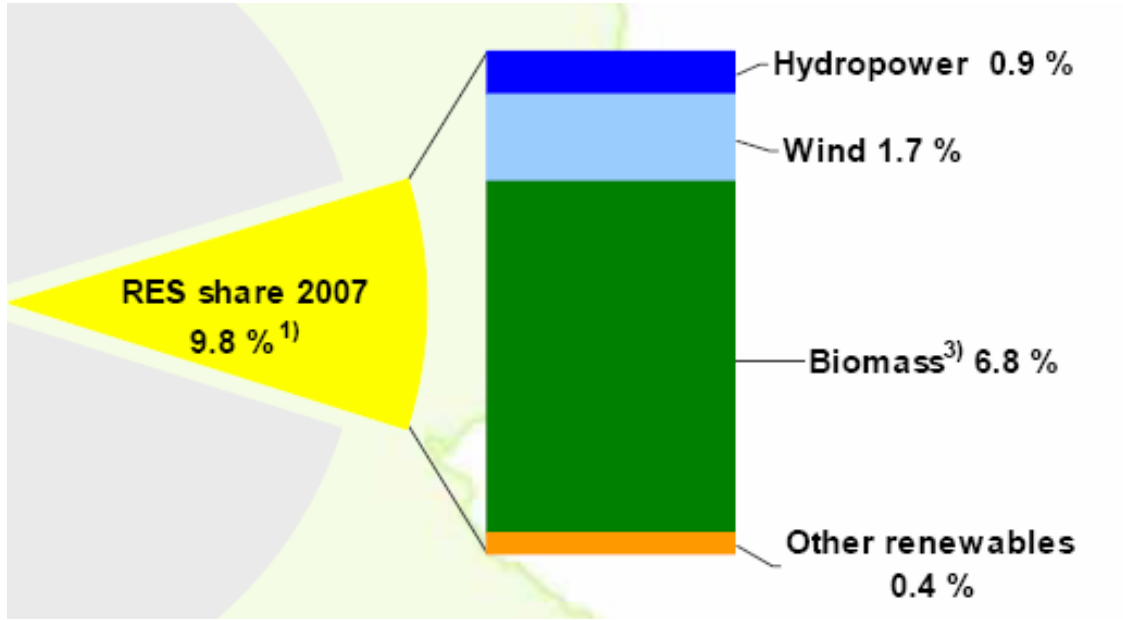
- Based on state provided motivation to economize in energy consumption

  e.g. - reduced taxes for power resources produced from RES
  - by laws fixed duty for high level of thermal isolation in new buildings
  - subsidies for modernisation of heating systems in private houses by the so named “Market incentive programme”
  - taxes for cars in relation to the $CO_2$-emission

- Laws to promote the production and selling of power resources from RES

  e.g. - Duty for energy supply companies to buy electricity produced by RES for guaranteed prices (the so named “Renewable Energies Law”, EEG)




**Total: 13,993 PJ**

1) German Government Targets

Source: BMU (2008), modified

## Renewable energy sources (RES) as a share of energy supply in Germany

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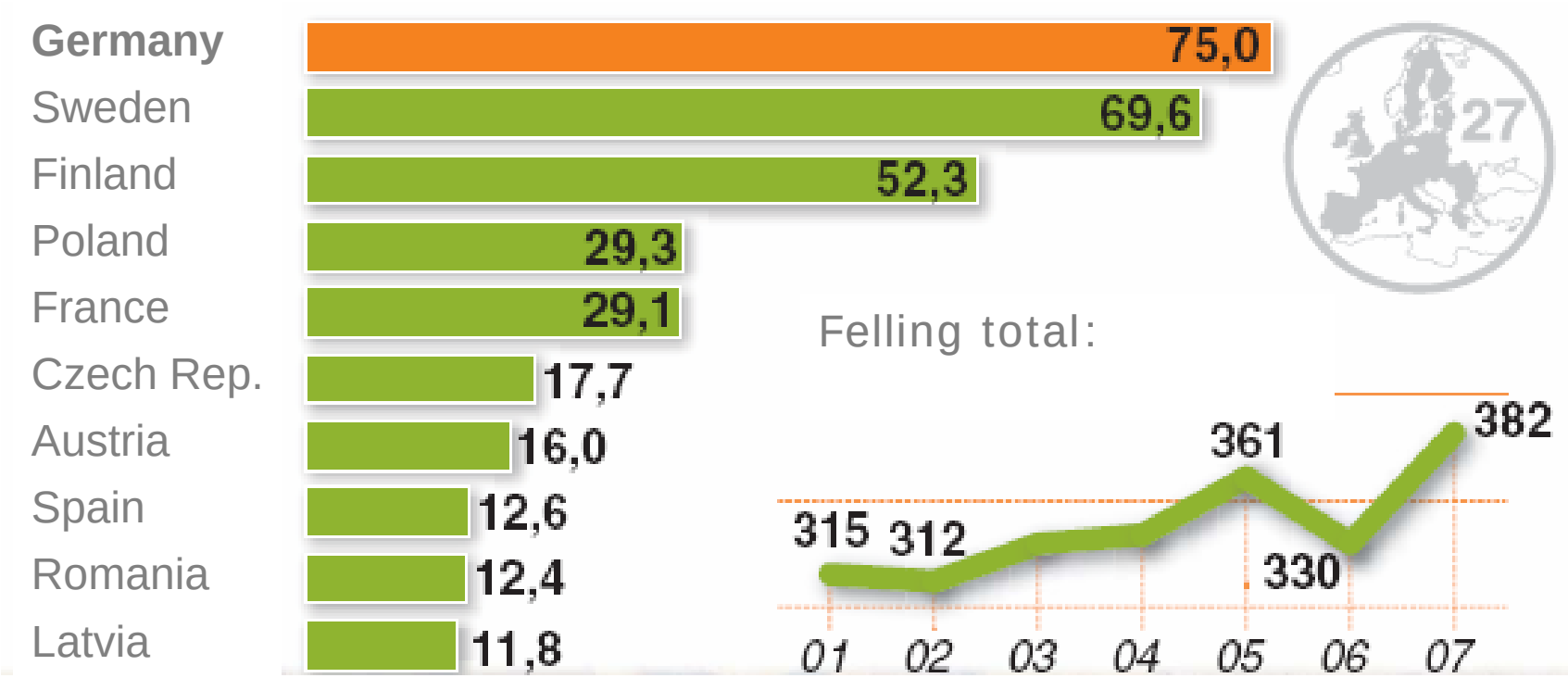
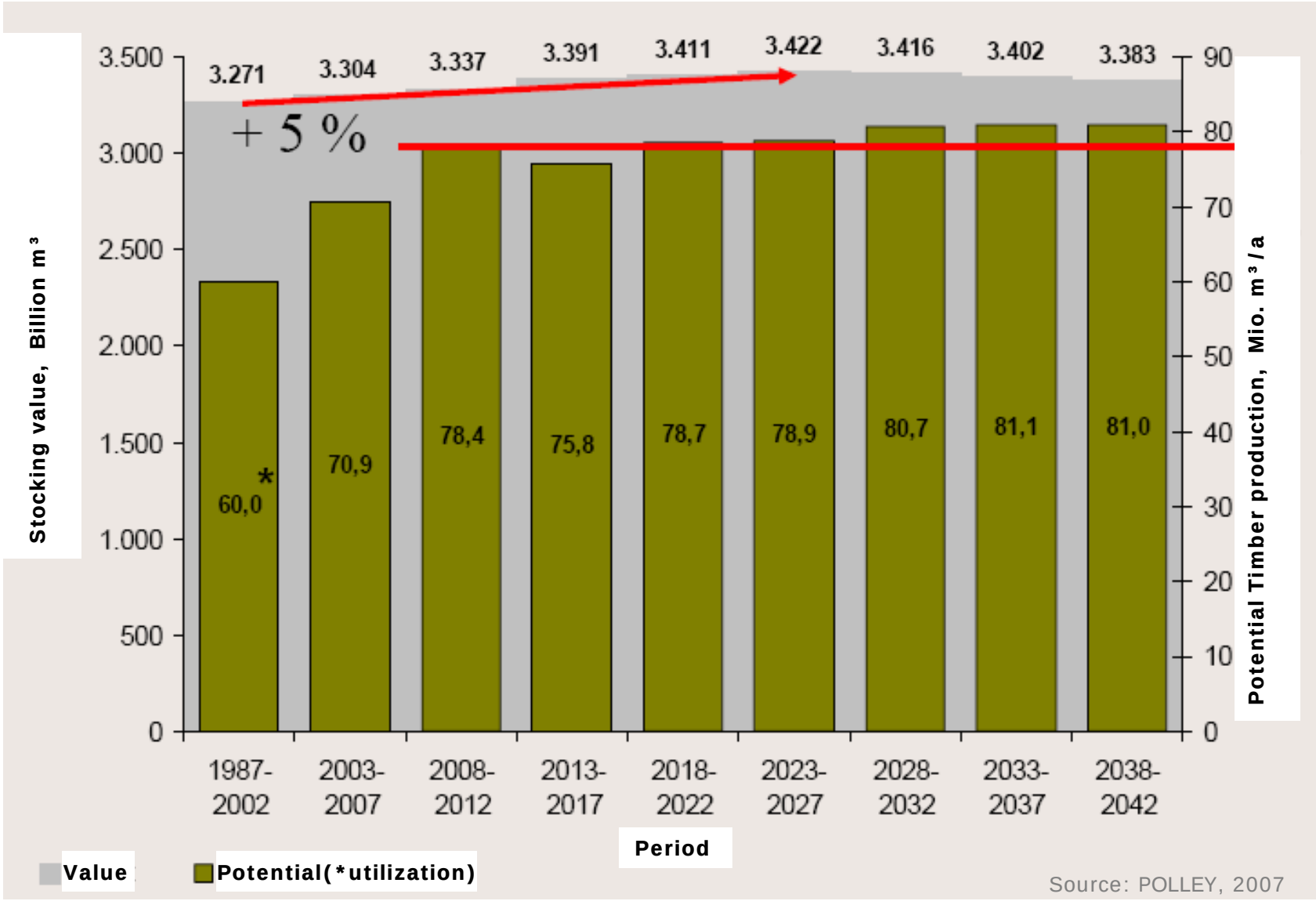



Source: ZMP (2008)

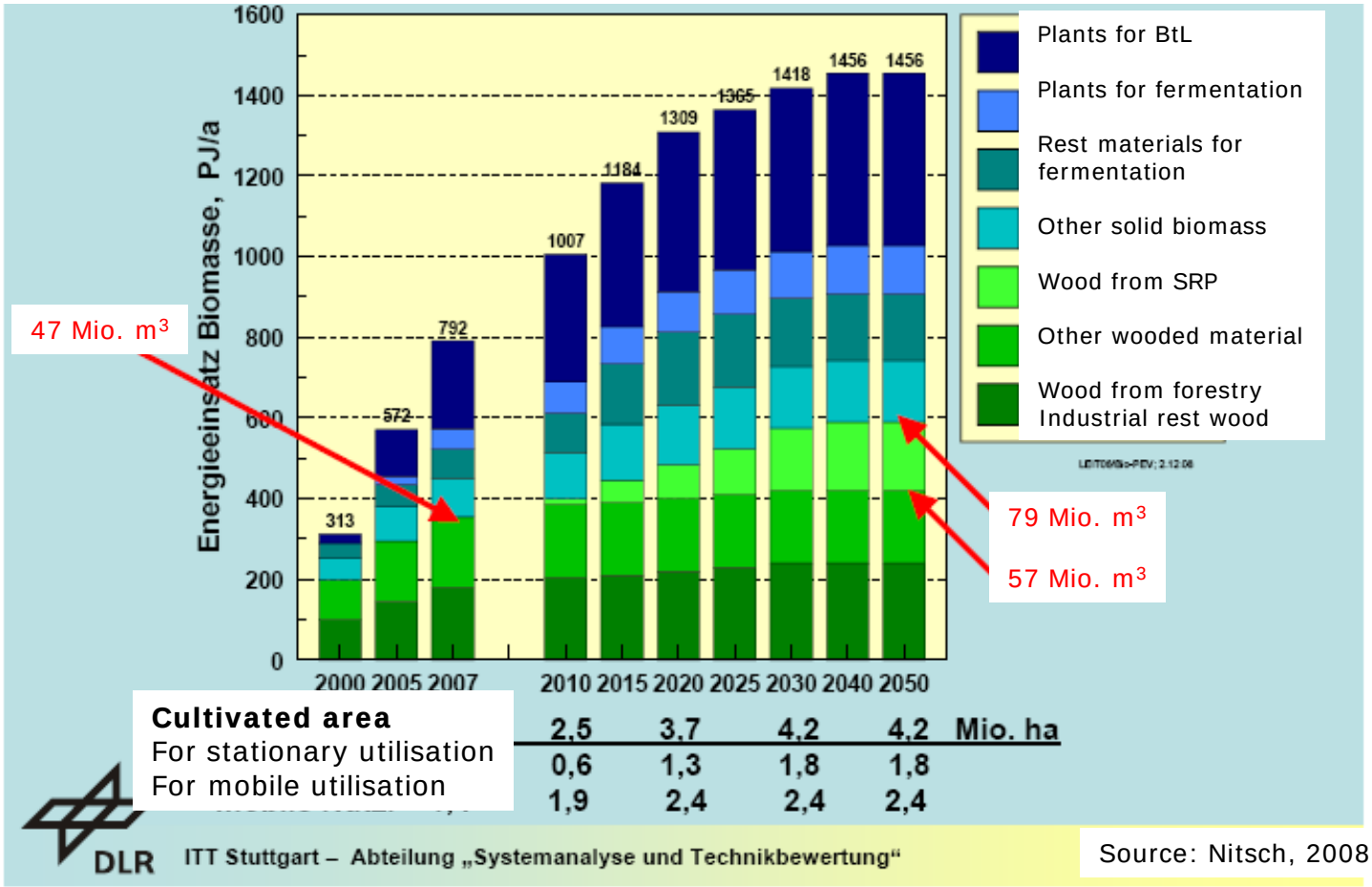
## Volume of felling in selected member states of the EU

(in 2007 ; Mio. $m^3$)




Scenario of development of the potential timber production

**Utilisation of Biomass for Energy (Rest materials, biogenic components of waste, energy plants)**




# Energy from biomass – guide scenario 2008

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**Planting**

**Harvesting**
after 3... 10 years


**Recultivation**
after >20 years


# Objectives of the Short Rotation Plantation technology

- Wood production by poplar, willow or black locust on farmland with yields of 8 ... 12 $t_{atro}$/ha·a; periodical harvest after 3 years earliest up to 20 years depended of using strategy

- In terms of the German guide scenario of biomass-to-energy strategy up to 2050 it needs ca. 1 Mio. ha of SRP for producing of the 20 Mio. $m^3$ additionally fuelwood per annum

- Further positive effects on employment in rural areas, improvement of regional infra structure and chances for added value (e.g. refinement, further processing)

- Generation of small regional enclosed economic cycles

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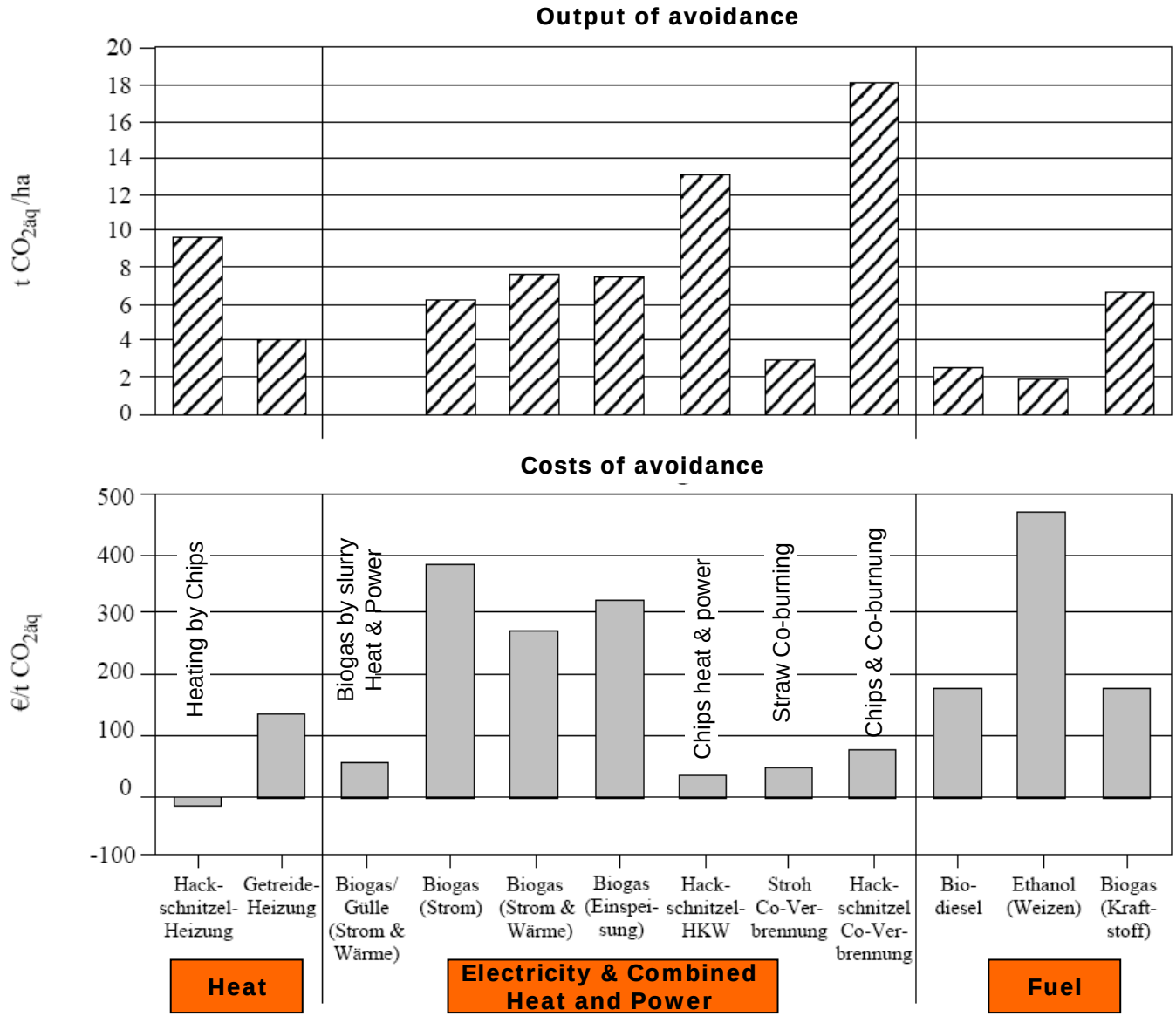
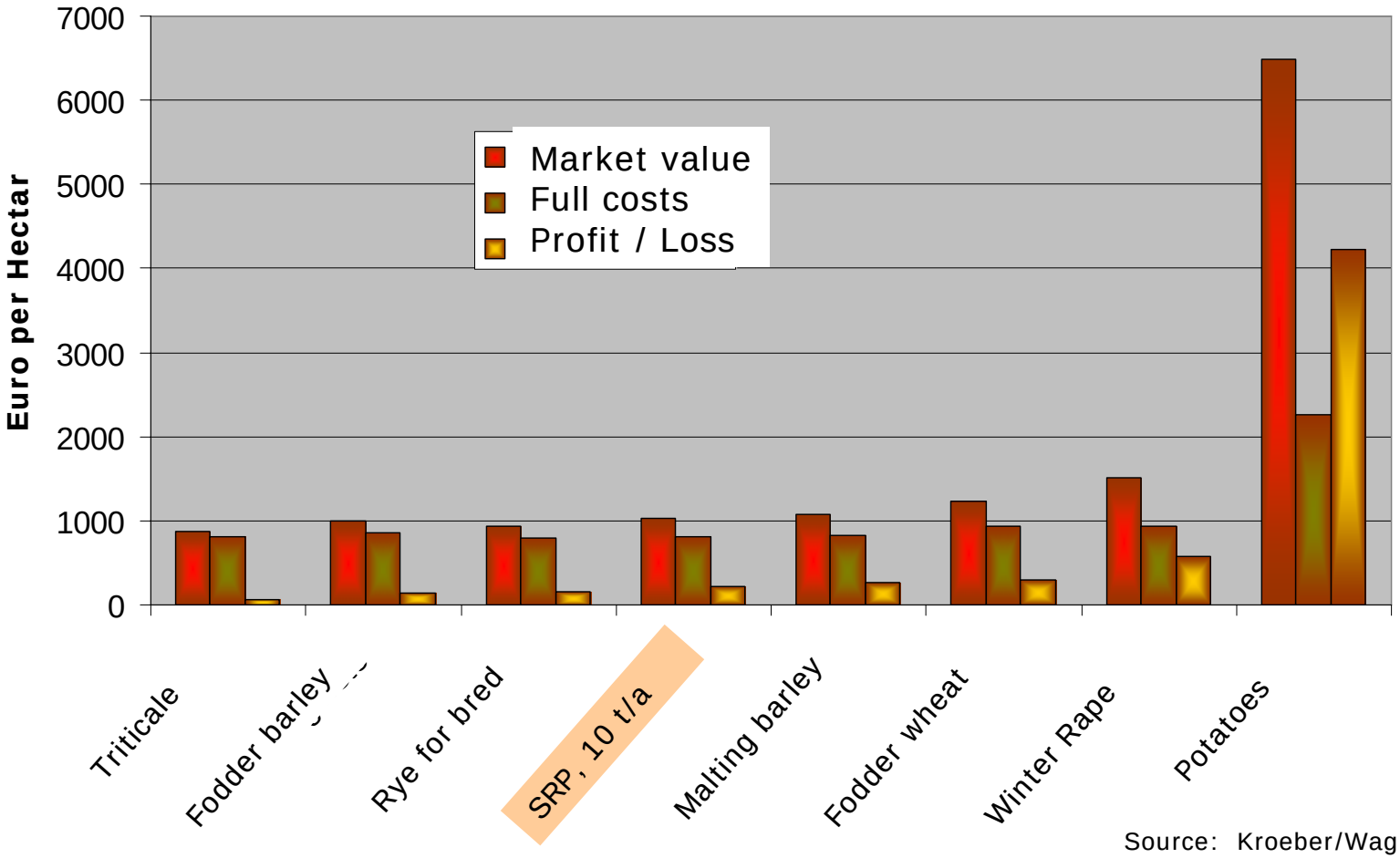



## Production of Bioenergy – Efficiency in $CO_2$-emission avoiding

### Output (per hectar) and Costs of $CO_{2\ aequv}$ avoiding

Source: Isermeyer et al. (2008) mod.

## Costs and Prices for selected agricultural products




Source: Kroeber/Wagner (2009)

## Outlook:

- Fuelwood from Short Rotation Plantations (SRP) is playing an important role in the climate protection strategy
- SRP's are competitive in relation to traditional agricultural production
- In terms of the Efficiency in $CO_2$ avoidance (€ per ton $CO_2$) wooden chips achieves the best result in relation to other Biomass based energy

Thank you for attention !